



# BHARAT HEAVY ELECTRICALS LIMITED

( A Government of India Undertaking )  
HIGH PRESSURE BOILER PLANT  
PURCHASE DEPARTMENT - FOSSIL BOILERS  
THIRUCHIRAPALLI - 620014  
TAMILNADU (INDIA)

PHONE :2577331  
GRAMS : BHARATELEC  
FAX NO: 2520719  
E-mail: srchandran@bheltry.co.in  
Web:

429-002/A

	<b>Enquiry No</b> 2661500388 - 55	<b>Enquiry Date</b> 29.09.2015	<b>Due Date for Quotation</b> 23.10.2015
Please quote Enquiry No, Date and due date in all correspondences. This is only a request for quotation and not an order. <b><i>Bid should be submitted in two parts. 1.Techno-commercial bid (Part-I) and 2.Price bid(Part-II) in a separate sealed cover and both covers must be placed in a third cover and sealed. Our Enquiry No., Enq. date &amp; Enq. Due date must be written on all three covers.</i></b>			

Item	Description	Unit	Quantity	Delivery Quantity	Schedule Date
10	7519A1900200  CABIN ROLLER ASSEMBLY AS PER DRAWING NO. 3M-19A-19-14780, AND ITS SUB DRAWINGS NO. 3M-19A-19-14779, 4M-19A-19-29125, 4M-19A-19-29126-01, 4M-19A-19-29127, 4M-19A-19-29128, 4M-19A-19-29129, 4M-19A-19-29130-01, 4M-19A-19-29131, 4M-19A-19-29132, 4M-19A-19-29133. NOTE : 1.Vendor should make a visit to BHEL/TRICHY Works for an #ON THE SPOT# study of the requirements of BHEL (based on the existing cabin roller system), prior to submitting the technical offer. The offer submitted without visit and assessment of the existing cabin roller system shall not be considered for evaluation. 2.After placement of Purchase order,supplier drawing should be submitted for BHEL approval(with in 7 to 10 days from the date of ordering)before start of manufacturing. 3.After placement of Purchase order 1 No of Sample shall be supplied with material conformance test certificate preferably within 5 weeks to BHEL acceptance. After getting acceptance from BHEL full quantity may be supplied. Acceptance from BHEL will be given within 1 week.This period (5+2 = 7 weeks)taken into account while quoting delivery period by the supplier. VENDOR QUALIFYING CRITERIA: Only those vendors who satisfy the following conditions will get qualified to participate in the tender: 1. Vendor should have minimum 2 years of experience in this field. 2. Previous PO details for supplying similar kind of items to BHEL and / or any-other Organisation should be submitted along with offer. Otherwise offer will be rejected.	NO	10.000	10.00	21.01.16

The offers should reach us 30 minutes before the time of opening of tenders. The offers will be opened at 14.30 hrs on the due date of tender in the presence of tenderers who have submitted their offer and who may like to be present for the tender opening.Late and delayed offers are liable to be rejected.

Yours faithfully,  
For BHARAT HEAVY ELECTRICALS LIMITED

**V. CHELLIAH**  
Sr Manager / Purchase  
MM / RM / CP & SP  
BHEL, TRICHY 620014.

MANAGER / PURCHASE  
(FOSSIL BOILERS)  
Yours faithfully,



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Web:

2661500388 / 29.09.2015

23505

3. Vendors who have not supplied the ordered items beyond the delivery schedule against our previous PO placed on them from 01.04.2014 are liable for rejection / May not be considered for evaluation. Hence only those vendors who are all regularly supplying to our POs shall quote for these items.
4. Company profile details has to be provided along with offer.
5. BHEL reserves the right to visit the vendor's works for verifying the manufacturing facilities and any other credential furnished by the vendor. In case the information furnished with the offers found to be false / incorrect, the offer shall be rejected.

**General Note:**

GENERAL NOTE:PLEASE SUBMIT YOUR OFFER IN "TWO PART BID SYSTEM" AS PER THE ANNEXURES ENCLOSED.

ENCLOSURES:ANNEXURE II,III,IV,V,VI,VII.

All the tenders may be addressed to the following address:

**The Tender Opening Cell / MM  
Room No: 26, Building 24, Ground Floor  
Bharat Heavy Electricals Limited  
TIRUCHIRAPALLI 620014**

In case personal delivery of the offer, it shall be dropped into the respective box kept in Room No: 26, after duly entering the data in the system.

Offers will be accepted only up to 14.00 Hrs on the due date. Therefore, vendors shall ensure to submit the offers well before this time. All due date extension requirements should be addressed to the respective Purchase mail IDs. All the due date extension requests from vendors will be considered only up to 48 hours before the due date and time.

Vendors are requested to avoid submission of offers through e mail / fax. In case of any unavoidable situation, offers shall be sent through e mail to the following mail ID only tender\_cell@bheltry.co.in.

As tenders are being opened by Common Tender Opening Cell, offer covers should be sealed with tenderer's distinctive seal and super scribed with correct Tender No. item of supply and due date of opening.


The offers will be opened at 14.30 hrs on the due date of the tender in the presence of tenderers who have submitted their offer and who may like to be present for the tender opening. Late and delayed offers are liable to be rejected.

**The bidder along with its associate/ collaborators/ sub-contractors/ sub-vendors/ consultants/ service**

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**V. CHELLIAH**  
Sr Manager / Purchase  
MM / RM / CP & SP  
BHEL, TRICHY - 620 014.

Yours faithfully,  
For BHARAT HEAVY ELECTRICALS LIMITED

  
MANAGER / PURCHASE  
(FOSSIL BOILERS)  
Yours faithfully,



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Web:

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23505

providers shall strictly adhere to BHEL fraud prevention policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL management about any fraud or suspected fraud as soon as it comes to their notice.

Enclosures:

"LD clause has to be confirmed without fail."

The offers should reach us 30 minutes before the time of opening of tenders.  
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Yours faithfully,  
For BHARAT HEAVY ELECTRICALS LIMITED

**V. CHELLIAH**  
Sr Manager / Purchase  
MM / RM / CP & SP  
BHEL, TRICHY - 620 014.

  
MANAGER / PURCHASE  
(FOSSIL BOILERS)  
Yours faithfully,

**CAPITAL PURCHASE**  
**COMMERCIAL TERMS AND CONDITIONS**

**1.0 QUOTATIONS**

The Bidders shall submit the offer in **TWO INNER ENVELOPES** as indicated below which shall be sealed in one outer envelope.

**Envelope I** This sealed envelope should contain all the copies of technical bid together with un-priced commercial bid & annexure III. This envelope should be clearly marked '**Part I - Technical and commercial bid**',

Indicating Enquiry No., Due Date and Address & Reference of the Bidder.

**Envelope II** This sealed envelope should contain **price as per Annexure-IV format**. This envelope should be clearly marked '**Part II - Price bid**', indicating **Enquiry No., Due Date and Address & Reference of the Bidder**.

Both the envelopes (Part I & II) shall be put in one cover (**Envelope III**), duly sealed, superscribing as Part I and Part II of Enquiry No., due date of opening and the address and reference of the Bidder

The above offer should reach this office on or before the due date by 14.00 hours (IST). Late offers will not be considered.

Tender should not be addressed to any individual's name

**The Tender Opening Cell/MM  
Room No-26 , Building – 24 , Ground Floor  
Bharat Heavy Electrical Limited  
Tiruchirapalli- 620014 .**

Tenders should be free from **CORRECTION AND ERASURES**, Corrections if any, must be attested. All Amounts shall be indicated both in words as well as in figures. Where there is difference between amount quoted in words and figures, amount quoted in words shall prevail.

Offers should be in **ENGLISH** and accompanied by detailed technical literature, catalogue and detailed dimensional drawings in **ENGLISH** or otherwise, the offers will not be considered.

**2.0 OPENING OF TENDERS**

The Part I - Technical & commercial bid alone would be opened on the Tender opening date.

The Part II - Price bid of technically suitable Bidders alone would be opened. The Technically Suitable Bidders would be informed about the tender opening date through e-mail.

Clarifications if any required by BHEL for Technical evaluation **would be** sought from Bidders before opening of Part II - price bid

**For any queries clarifications the bidders may contact us through our FAX NO. +91 431 2520719 or through e-mail <arunachal@bheltry.co.in >&< chells@bheltry.co.in>**

**MM: CP & SP**  
**Annexure For Techno Commercial Bid**

Check List - to be filled and submitted along with Technical Bid

BHEL Commercial Terms and Conditions for Indigenous Supplies	Vendor's Confirmation / Comments
Technical confirmation to BHEL's Specification as called for in BHEL Format shall be furnished. If needed additional sheets shall be used.	
Prices shall be <b>quoted item wise</b> only as per the model format enclosed	
Prices shall be quoted on " <b>FIRM PRICE</b> " basis only The prices should be only on <b>F.O.R / Despatching station basis with Packing &amp; Forwarding charges if any. Applicable % of ED &amp; Sales Tax, Freight &amp; Insurance, Installation &amp; Commissioning Charges should be clearly Indicated</b>	
<b>Validity of offer</b> shall be for a minimum period of 120 days from the date of Tender opening	
Delivery period from the date of Letter of Intent / Purchase order shall be clearly mentioned in the offer	
<b>Liquidated damages @ '0.5% per week</b> subject to a maximum of 10% of the order value shall be applicable for delay in deliveries <b>For Details Refer Annexure- v</b>	
<b>Following Risk Purchase clause</b> shall be applicable The purchaser at his option will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of the seller either the whole of the goods or any part which the supplier has failed to deliver or dispatch within the time stipulated or if the same were not available, the best and the nearest available substitute therefore The supplier shall be liable for any loss which the Purchaser may sustain by reason of such risk purchases	
<b>Payment term for supply portion:</b> Payment term is 100% direct payment after 45 days from the date of receipt and acceptance of materials <b>For details Refer Annexure- v</b>	
Erection / commissioning: (if applicable only) Erection / commissioning charges if any has been mentioned in the offer or else confirmation that Erection /commissioning shall be done at free of cost is available in the offer,	
The equipment shall be guaranteed for a period of 12 months from the date of commissioning	
Final inspection and acceptance of equipment will be after installation at BHEL, Trichy	
The vendor shall provide necessary drawings, Test Certificates and Operating Maintenance Manuals etc., as called for in the Technical Specification, in the required number of copies at no extra cost	
Any warranty replacement during warranty period shall be supplied free of charge on FOR BHEL, Trichy basis.	
Offers should be submitted only in <b>sealed cover super-scribing clearly the Enquiry reference and due date.</b>	
% of Excise Duty with cess	
% of TAX (CST/VAT)-(INGST with FORM-17 or CST with C-FORM)	
Packing & Forwarding Charges ( if any in % only)	
Percentage of Freight& transit insurance charges, if any Freight charges from Dispatching station to BHEL, Tiruchirappalli • Supplier should quote for F.O.R-BHEL Trichy Stores.	
As per Commercial terms and conditions, acceptance for participation in Reverse auction (RA).Yes/No to be indicated	
Name of the person for participating reverse auction	
Land Line Number	
Fax Number	
Mobile Number	
E-mail ID	

## NOTE:-

- a) It is confirmed that all the terms and conditions stipulated in the Enquiry have been fully understood by us and all clarifications & details have been obtained.
- b) Your offer should be indicating applicable if any P&F Charges, % of ED, Sales Tax -CST or VAT, Service Tax), Freight, Insurance and Installation and Commissioning Charges etc., as per our Price Format
- c) Your specific acceptance to our Payment terms, LD & Risk Purchase Clause are essential for consideration of your offer. Other wise your offer is liable for rejection.
- d) No row shall be left blank. Please indicate NA, in case the item is "not applicable"

## Annexure For Price Bid

**Bharat Heavy Electricals Limited TIRUCHIRAPPALLI CAPITAL PURCHASE**  
**MODEL PRICE BID FORMAT FOR INDIAN BIDDERS**

Annexure-IV

Enquiry No. & Date:

Bidder's Offer No. & Date:

SI No	Description of item	Unit	Quantity	Rate in Rs.	Value in Rs.
	<b>TOTAL VALUE IN RS.</b>				
	<b>Packing &amp; Forwarding charges in % if any</b>				
	<b>Freight &amp; Insurance Charges In % if freight charges are not mentioned it will be considered as FOR-BHEL TRICHY.</b>				
	<b>Excise Duty (indicate in %)</b>				
	<b>A) TNGST — VAT (%)</b>				
	<b>B) CST with C-FORM — (%)</b>				
	<b>C) CST without C-Form — (%)</b>				
	<b>Approximate Net weight of the total consignment</b>				
	<b>Approximate Gross weight of the total consignment</b>				
	<b>Approximate Dimensions of the Consignment</b>				
	<b>The price indicated shall be inclusive of all accessories, spares etc. as given in the scope of supply. Individual item-wise break-up price shall be attached as an annexure to this price bid format.</b>				

**Signature & Seal of Vendor**

**NOTE:**

1. The price bid should be submitted only as per the above format. No row shall be left blank. Please indicate NA, in case the item is "not applicable".
2. Prices shall be quoted item-wise only as per the above format.
3. If Price quoted is Inclusive of ED, the included ED Value and Base Value shall be indicated item-wise.

<b>Payment Term (Indigenous)</b>	
<b>If materials are receivable at Stores/Trichy <u>without PBG</u></b>	Payment term is 100% direct payment after 45 days from the date of receipt and acceptance of materials.
<b>If materials are receivable at Stores/Trichy <u>with PBG</u></b>	Payment term is 100% direct payment after 45 days from the date of receipt and acceptance of materials and against 10% PBG valid for the warranty period.
Any deviation in the above payment term will attract loading as mentioned below. “Base rate of SBI (as applicable on the date of bid opening. Techno-commercial bid opening in case of two part bids) + 6% shall be considered for loading for the period of relaxation sought by bidders.	

Offers of indigenous Suppliers with any other Payment terms will be rejected.

<b>Liquidated Damages / Penalty -</b>
The delivery of the goods specified in the purchase order should be made within the time prescribed. LD for delay in 'Supply' and/or 'E&C' will be applicable to the delays attributed to vendor. LD will be considered separately for 'Delivery' and 'E&C'. Where the seller supplies or dispatches the goods, beyond the delivery period Liquidated damages shall be applicable 0.5% of the total order value per week or part thereof subject to a maximum of 10% of the total order value. <b>Material Despatched after Due date:</b> Once the delivery due date is crossed, <u>bills have to be clubbed till final despatch and forwarded for processing of payment as a single bunch</u> . LD percentage will be calculated from Delivery due date to final despatch date. The rate of LD for delayed E&C shall be @ 0.5% per week of delay of total PO value (Supply + E&C) in E&C subject to a maximum of 10% of total PO value (Supply + E&C). For staggered delivery schedule, LD shall be 0.5% of the undelivered portion per week of the delay or part thereof subject to a maximum of 10% of the total order value. Any deviation from the above LD clause, loading will be applied to the extent to which it is not agreed by the bidder (at offered value). For the purpose of Imposing LD, the FOB delivery (B/L date) shall be considered.

<b>Guarantee / Warranty Period – (if applicable)</b>
Normally No deviation permitted and the deviated offers are liable for rejection.

<b>Ranking-</b>
BHEL will consider the ranking after the loading is applied as referred above wherever deviations are observed.

<b>Performance Bank Guarantee – (if applicable)</b>
Normally No deviation permitted and the deviated offers are liable for rejection.

**Fraud prevention clause:** The bidder along with its associate/collaborator/sub-contractor/sub-vendor/consultants/service providers shall strictly adhere to BHEL fraud prevention policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL management about any fraud or suspected fraud as soon as it comes to their notice.

**NOTE:-**

1. If the due date of tender opening happens to be a holiday, the tenders will be opened on the next working day.
2. BHEL reserves the right to go for a reverse auction (RA) instead of opening the submitted sealed bid which will be decided after technical evaluation. Information and general terms and conditions covering RA are given in commercial terms and conditions.
3. Corrigendum if any, with respect to this tender will be hosted only in the website <http://www.bhel.com> or <http://tenders.gov.in>. You are requested to visit the website regularly for updates.

**Special Provisions for Micro and Small Enterprises (MSE)**

1. 20% of the tendered quantity is earmarked for MSE suppliers in this tender.
2. Out of the 20% tendered quantity reserved for MSE suppliers, 4% shall be earmarked for procurement from MSE owned by SC/ST entrepreneurs.
3. In case MSE vendor participating in the tender quotes within the price band of L1+15%, they will be allowed to supply the portion of the requirement subject to acceptance of L1 price by MSE vendor. In case of more than one such MSE, the supply shall be shared proportionately.
4. "MSE suppliers can avail the intended benefits only if they submit along with the offer, attested copies of either EM II certificate having deemed validity (five years from the date of issue of acknowledgement in EM-II) or valid NSIC certificate or EM II certificate along with attested copy of a CA certificate (Format enclosed at Annexure -VII where deemed validity of EM II certificate of five Years has expired) applicable for the relevant financial year (latest audited). Date to be reckoned for determining the deemed validity will be the date of bid opening (Part 1 in case of two part bid). Non submission of such documents will lead to consideration of their bid at par with other bidders. No benefit shall be applicable for this enquiry if any deficiency in the above required documents are not submitted before price bid opening. If the tender is to be submitted through e-procurement portal, then the above required documents are to be uploaded on the portal. Documents should be notarized or attested by a Gazetted officer."

**Certificate by Chartered Accountant on letter head**

This is to Certify that M/S .....  
(hereinafter referred to as 'company') having its registered office at  
..... is registered under MSMED Act 2006, (Entrepreneur  
Memorandum No (Part-II) ..... dtd:.....,  
Category: ..... (Micro/Small)). (Copy enclosed).

Further verified from the Books of Accounts that the investment of the company as on  
date..... as per MSMED Act 2006 is as follows:

1. **For Manufacturing Enterprises:** Investment in plant and machinery (i.e. original cost excluding land and building and the items specified by the Ministry of Small Scale Industries vide its notification No.S.O.1722(E) dated October 5, 2006 :  
Rs.....Lacs
2. **For Service Enterprises:** Investment in equipment (original cost excluding land and building and furniture, fittings and other items not directly related to the service rendered or as may be notified under the MSMED Act, 2006:  
Rs.....Lacs

The above investment of Rs.....Lacs is within permissible limit of  
Rs.....Lacs for .....Micro / Small (Strike off which is not applicable)  
Category under MSMED Act 2006.

Date:

(Signature)

Name -

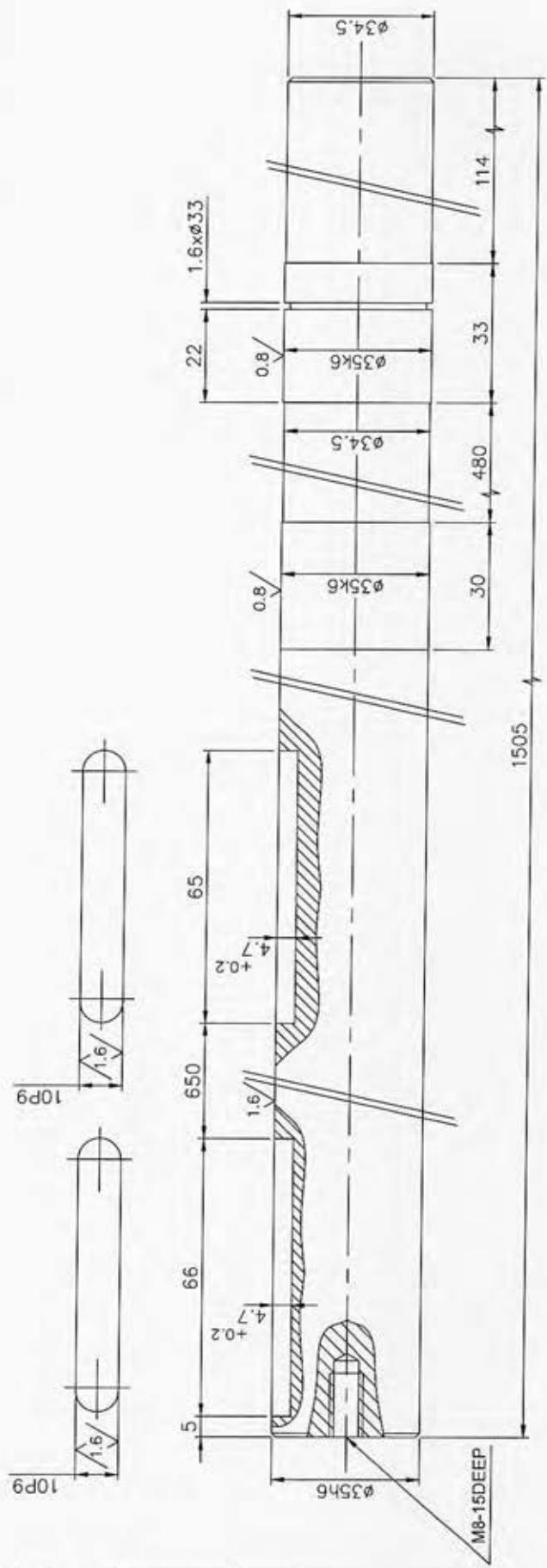
Membership number -

Seal of Chartered Accountant

ALL DIMENSIONS ARE IN MM

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10P9	-0.012 -0.042	35h6	-0.000 -0.016	35k6	+0.018 +0.002	3.2/1.6/0.8/
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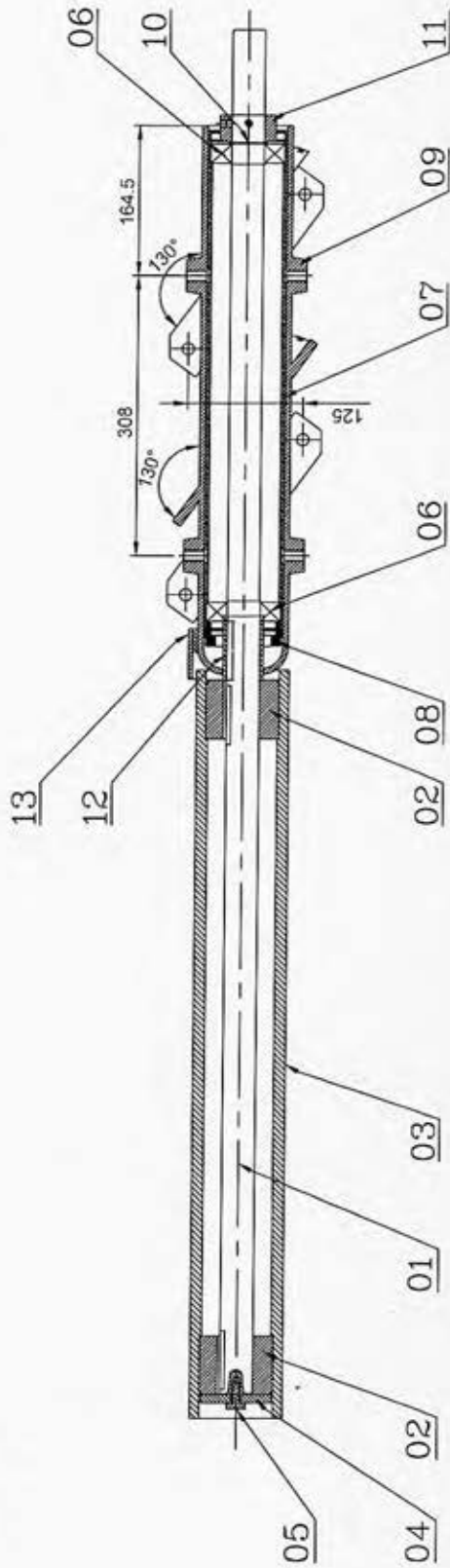


NOTE: -

HARDENED TO HRC 35<sup>±0.5</sup>  
CHAMFER CORNERS FOR 1/45°

	SCALE	1:1	T.T. BALAKRISHNAN K. PARAMASIRTY C.S. JAYASHEELAN 08.08.2011	MACHINING: ROTO SHOTBLASTING TYPE: NESCO LEAD-ROTO-2	DRAWING No: <b>3M19A1914779</b>	No. of Sheets: 3	REV.
	DRAWN CHECKED APPROVED DATE	IS: 5517 STANDARD ALTERATIONS:					

ALL DIMENSIONS ARE IN MM



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QTY	DESCRIPTION	MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	REV.
2	BEARING OD80xID35x21t	6307 SEAL MASTER USA				06
1	M8 HEX. SCREW					05
1	LOCK PLATE			0.38	4M19A1929127	04
1	ROLLER			28.26	4M19A1929126	03
2	ROLLER BUSH			2.01	4M19A1929125	02
1	DRIVE SHAFT			11.36	3M19A1914779	01
				58.66		

QTY	DESCRIPTION	MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	REV.
1	SAFETY COVER			0.54	4M19A1929133	13
1	BUSH			0.24	4M19A1929132	12
1	COVER			4.95	4M19A1929131	11
1	CIRCLIP					10
1	ROLLER HOUSING			10.00	4M19A1929130	09
1	BEARING LOCKING			0.38	4M19A1929129	08
1	BEARING HOUSING			0.54	4M19A1929128	07

SCALE: DRAWN: T.T. BALASUBRAMANIAM  
 CHECKED: K. RAMAMOORTHY  
 APPROVED: G.S. JAYASEELAN  
 DATE: 08.08.2011

MACHINE: ROTO SHOT/BLASTING  
 TYPE: NESCO LEAD-ROTO TWO

TITLE: CABIN ROLLER ASSY

DRAWING No: 3M19A1914780

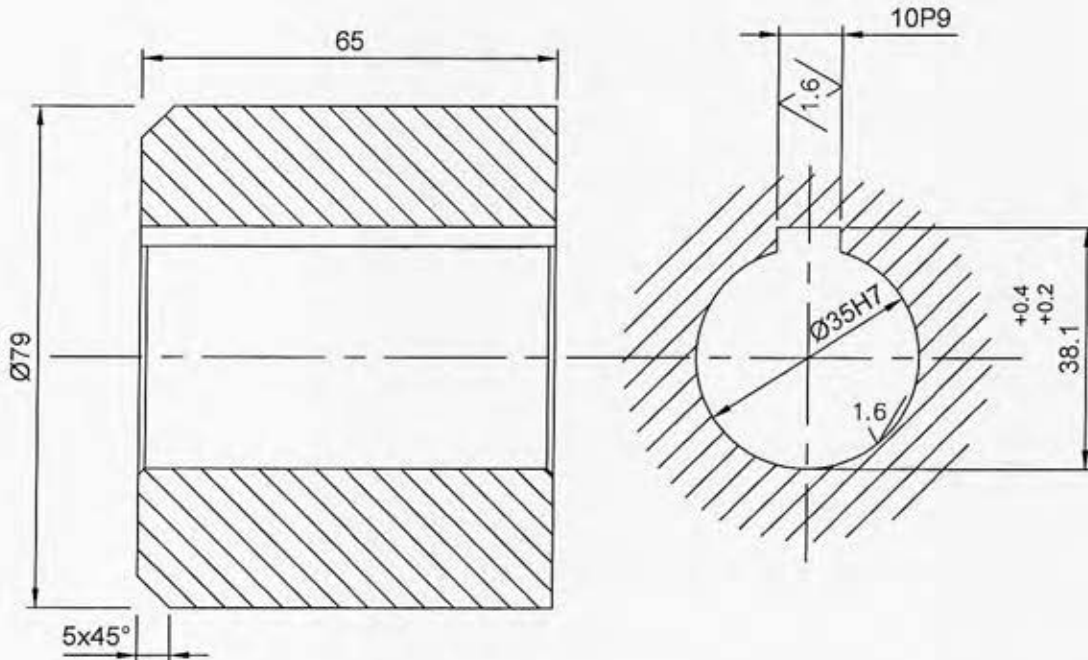
Sheet No: 07 of 07

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10P9	-0.012	35H7	+0.025
	-0.042		+0.000

3.2//1.6



NOTE: -

CHAMFER CORNERS FOR 1/45°

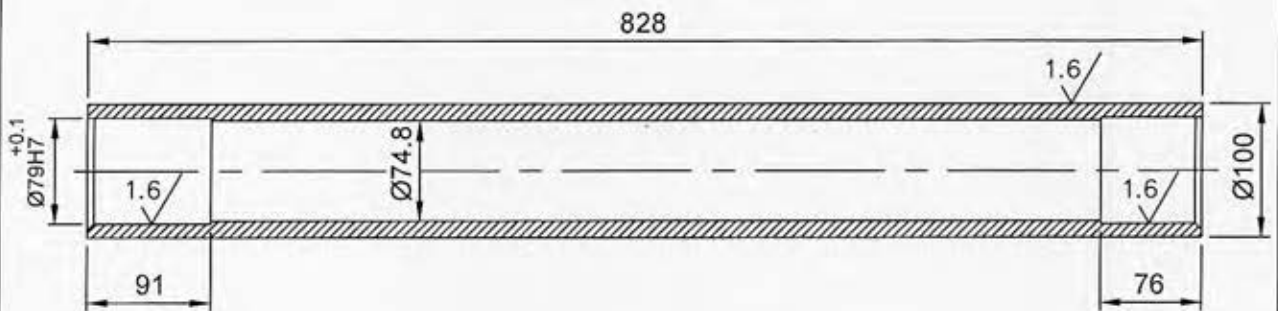
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	DESCRIPTION		MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	ITEM No.
REFERENCE:				ALTERATIONS:	DCN REF	DATE	SIGN.
SCALE	DRAWN	T.T.BALAKRISHNAN					
1:1	CHECKED	R.RAMAMOORTHY					
	APPROVED	C.S.JAYASHEELAN					
	DATE	08.08.2011					
	MACHINE: ROTO SHOTBLASTING			TYPE: NESCO LEAD-ROTO-2			
	TITLE: ROLLER BUSH OD79x65L (CABIN ROLLER ASSY.)			DRAWING No:			REV.
				4M19A1929125			
			No. of Sheets:		Sheet No:		

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ALL DIMENSIONS ARE IN MM

Ø79H7	+0.021
	+0.021

3.2//1.6/



% CHEMICAL COMPOSITION

C	Mn	Mo	Si	P
1.05-1.35	11-14	0.5	1.00 Max	0.07 Max

NOTE: -

HARDENED TO HRC 60 <sup>±2</sup>  
 CHAMFER CORNERS FOR 1/45°

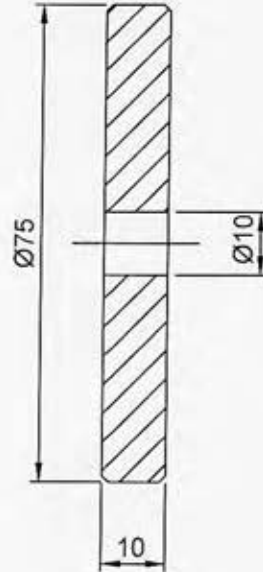
No. of Pieces	Ø100x828L		ASTM-128 Gr'A CASTING	28.26	3M19A1914780	03		
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	CHECKED	R.RAMAMOORTHY						
	APPROVED	C.S.JAYASHEELAN						
	DATE	08.08.2011						
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	TITLE: ROLLER ID74.8xØD100x828L (CYLINDER ROLLER ASSY.)			DRAWING No:		REV.		
				4M19A192912601				
			No. of Sheets:		Sheet No:			

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**CAUTION:**

ALL DIMENSIONS ARE IN MM

3.2/



**NOTE: -**

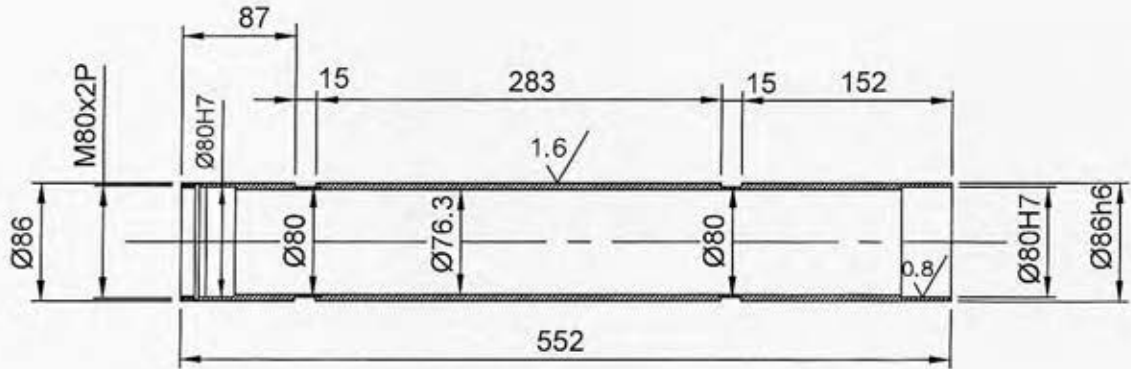
CHAMFER CORNERS FOR 1/45°  
HARDNED TO HRC 60<sup>±2</sup>

X		ø75x10t		13Ni 13Cr 3	IS: 4432	0.38	3M19A1914780	04
No. of Pieces	DESCRIPTION			MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	ITEM No.
REFERENCE:					ALTERATIONS:	DCN REF	DATE	SIGN.
SCALE	DRAWN	T.T.BALAKRISHNAN	T.T. Balakrishnan					
	CHECKED	R.RAMAMOORTHY						
1:1	APPROVED	C.S.JAYASHEELAN						
	DATE	08.08.2011						
MACHINE: ROTO SHOTBLASTING				TYPE: NESCO LEAD-ROTO-2				
TITLE: LOCK PLATE (CABIN ROLLER ASSY.)				DRAWING No:		REV.		
				4M19A1929127				
				No. of Sheets:		Sheet No:		

CAUTION: THIS DRAWING IS OUR SOLE PROPERTY AND SHOULD NOT BE USED IN ANY FORM FOR ANY PURPOSE WITHOUT THE WRITTEN PERMISSION OF BHARAT HEAVY ELECTRICALS LIMITED TRICHIRAPPALLI - 620 014.

ALL DIMENSIONS ARE IN MM

ø86h6	-0.000	ø80H7	+0.030	3.2//1.6/0.8/
	-0.022		0.000	



NOTE: -

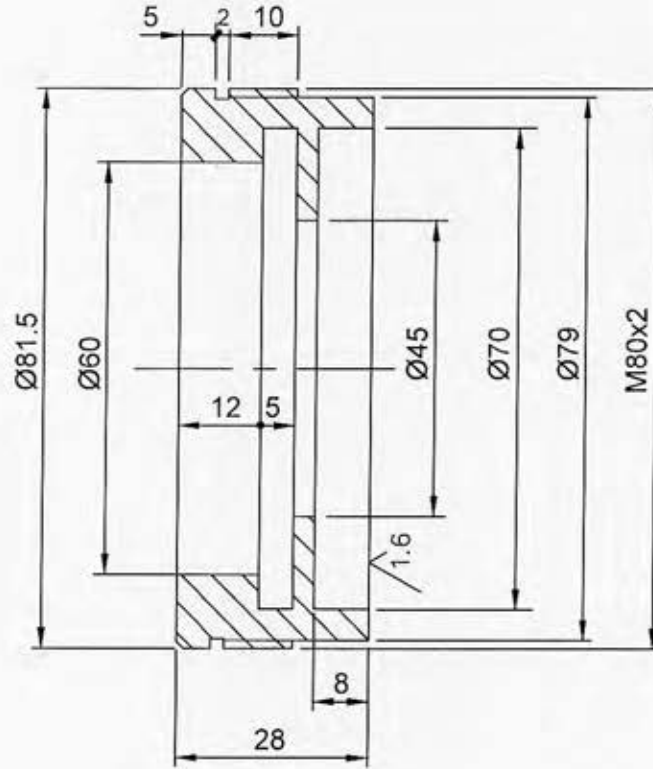
HARDNED TO HRC 35<sup>±2</sup>  
CHAMFER CORNERS FOR 1/45°

No. of Pieces	OD86xID76.3x552L		55C8	IS: 5517	3.35	3M19A1914780	05	
	DESCRIPTION		MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	ITEM No.	
REFERENCE:				ALTERATIONS:	DCN REF	DATE	SIGN.	INDEX
SCALE	DRAWN	T.T.BALAKRISHNAN		T.T. Balakrishnan				
1:5	CHECKED	R.RAMAMOORTHY						
	APPROVED	C.S.JAYASHEELAN						
	DATE	08.08.2011						
	MACHINE: ROTO SHOTBLASTING			TYPE: NESCO LEAD-ROTO-2				
	TITLE: BEARING HOUSING (CABIN ROLLER ASSY.)			DRAWING No: 4M19A1929128				REV.
				No. of Sheets:		Sheet No:		

CAUTION: THIS DRAWING IS OUR SOLE PROPERTY AND SHOULD NOT BE USED IN ANY FORM FOR ANY PURPOSE WITHOUT THE WRITTEN PERMISSION OF BHARAT HEAVY ELECTRICALS LIMITED TRICHERAPPALLI - 620 014.

ALL DIMENSIONS ARE IN MM

3.2//1.6/



NOTE: -

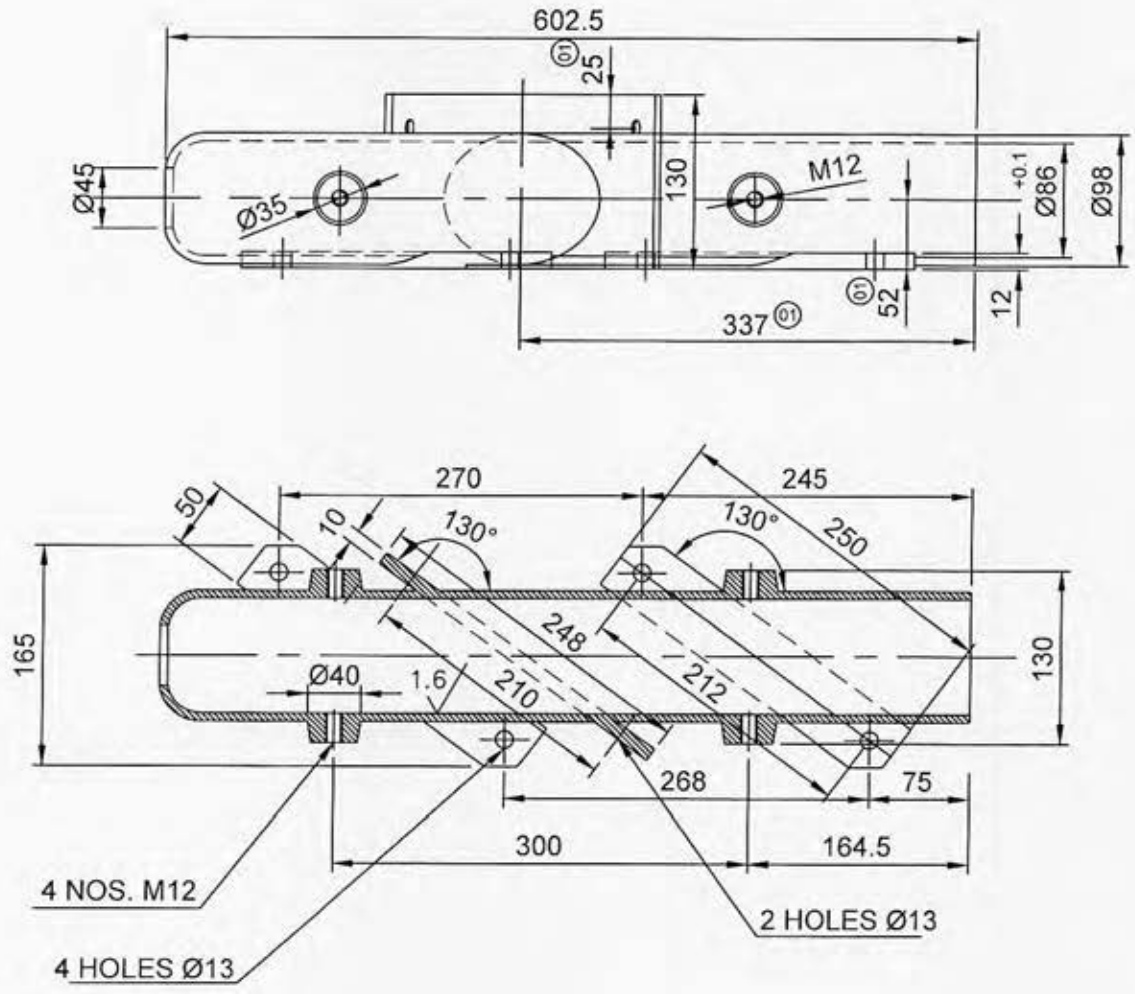
CHAMFER CORNERS FOR 1/45°

X		Ø81.5x28L	45C8	IS: 7283	0.54	3M19A1914780	06
No. of Pieces	DESCRIPTION		MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	
REFERENCE:				ALTERATIONS:	DCN REF	DATE	SIGN.
SCALE 1:1	DRAWN	T.T.BALAKRISHNAN	T.T. Balakrishnan				
	CHECKED	R.RAMAMOORTHY					
	APPROVED	C.S.JAYASHEELAN					
	DATE	08.08.2011					
MACHINE: ROTO SHOTBLASTING			TYPE: NESCO LEAD-ROTO-2				
TITLE: BEARING LOCKING M80x2Px28t (CABIN ROLLER ASSY.)			DRAWING No:		REV.		
			4M19A1929129				
			No. of Sheets:		Sheet No:		

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ALL DIMENSIONS ARE IN MM

1.6



**% CHEMICAL COMPOSITION**

C	Cr	Mn	Si	Mo
2-3.45%	14-18%	2% Max	1.5% Max	3% Max

NOTE: -

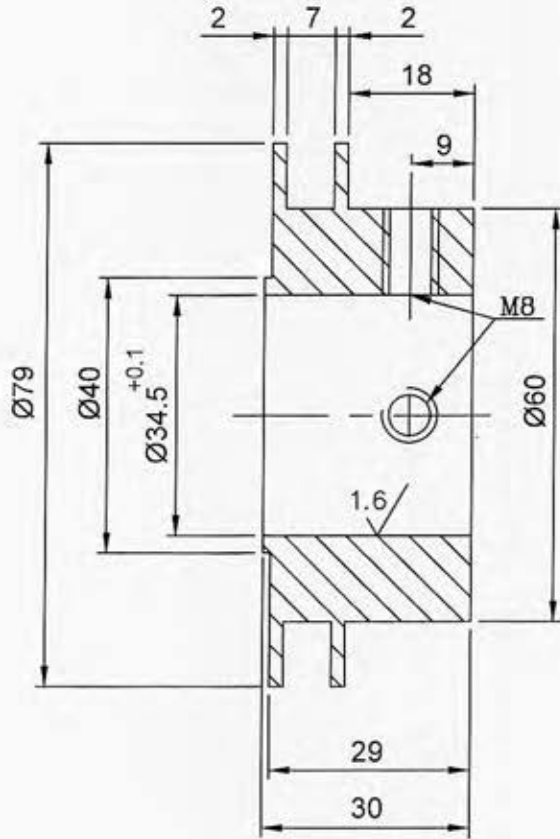
HARDNED TO HRC 60<sup>±2</sup>

IS: 4771		10.00		3M19A1914780		07		
No. of Pieces	DESCRIPTION		MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.		ITEM No.
REFERENCE:			ALTERATIONS:		DCN REF	DATE	SIGN.	INDEX
SCALE	DRAWN	T.T.BALAKRISHNAN	T.T. Balakrishnan	ADDED DIMN.		17.03.14	K.R	01
	CHECKED	R.RAMAMOORTHY						
	APPROVED	C.S.JAYASHEELAN						
	DATE	08.08.2011						
MACHINE: ROTO SHOTBLASTING				TYPE: NESCO LEAD-ROTO-2				
TITLE: ROLLER HOUSING (CABIN ROLLER ASSY.)				DRAWING No:		REV.		
				4M19A1929130		01		
				No. of Sheets:		Sheet No:		

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ALL DIMENSIONS ARE IN MM

3.2/1.6/



NOTE: -

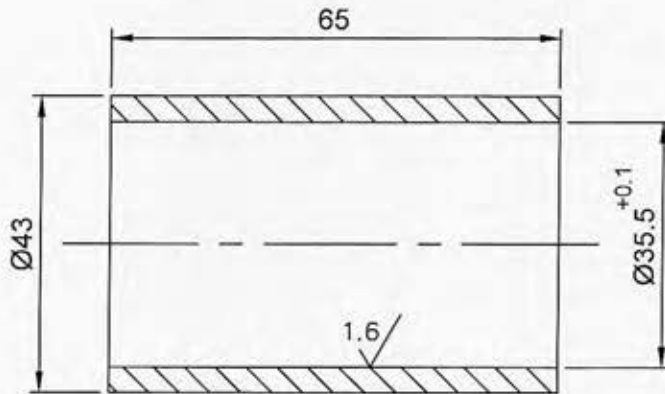
HARDNED TO HRC 35<sup>±2</sup>  
 CHAMFER CORNERS FOR 1/45°

X		ø79x30L	55C8	IS: 5517	4.95	3M19A1914780	08
No. of Pieces	DESCRIPTION		MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	
REFERENCE:				ALTERATIONS:	DCN REF	DATE	SIGN.
SCALE 1:1	DRAWN	T.T.BALAKRISHNAN					
	CHECKED	R.RAMAMOORTHY					
	APPROVED	C.S.JAYASHEELAN					
	DATE	08.08.2011					
MACHINE: ROTO SHOTBLASTING			TYPE: NESCO LEAD-ROTOTWO				
TITLE: <b>COVER</b> (CABIN ROLLER ASSY.)			DRAWING No:				REV.
			4M19A1929131				
			No. of Sheets:		Sheet No:		

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ALL DIMENSIONS ARE IN MM

3.2//1.6/

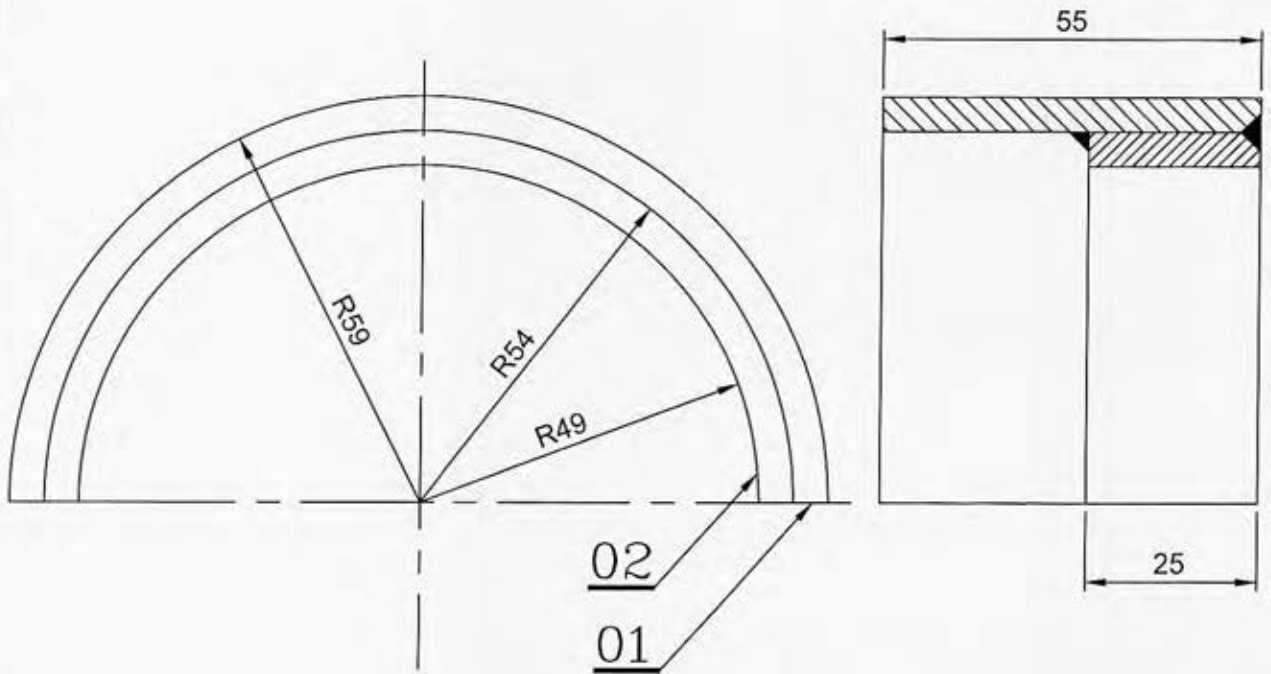


NOTE: - CHAMFER CORNERS FOR 1/45°

No. of Pieces		DESCRIPTION		MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	ITEM No.
X				PCuSn7	IS: 28	0.24	3M19A1914780	09
REFERENCE:					ALTERATIONS:	DCN REF	DATE	SIGN.
SCALE 1:1	DRAWN	T.T.BALAKRISHNAN	<i>T.T. Balakrishnan</i>					
	CHECKED	R.RAMAMOORTHY						
	APPROVED	C.S.JAYASHEELAN						
	DATE	08.08.2011						
		MACHINE: ROTO SHOTBLASTING			TYPE: NESCO LEAD-ROTOTWO			
		TITLE: BUSH (ID35.5xOD43x65L) (CABIN ROLLER ASSY.)			DRAWING No:		REV.	
		4M19A1		929132		No. of Sheets:	Sheet No:	

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ALL DIMENSIONS ARE IN MM



NOTE: -  
SHARP CORNERS TO BE REMOVED  
ALL WELDED CONSTRUCTIONS

1	PI.5txID98xOD108x25L(HALF)	Fe410WA	IS: 2062	0.16		02
1	PI.5txID108xOD118x55L(HALF)	Fe410WA	IS: 2062	2.34		01
				2.50	3M19A1914780	10

No. of Pieces	DESCRIPTION	MATERIAL	STANDARD	NET.WT.IN KGS.	DRAWING No.	ITEM No.
REFERENCE:			ALTERATIONS:	DCN REF	DATE	SIGN. INDEX
SCALE	DRAWN	T.T.BALAKRISHNAN				
	CHECKED	R.RAMAMOORTHY				
1:1	APPROVED	C.S.JAYASHEELAN				
	DATE	08.08.2011				



MACHINE: ROTO SHOTBLASTING  
 TITLE: SAFETY COVER  
 (CABIN ROLLER ASSY.)

TYPE: NESCO LEAD-ROTO-2  
 DRAWING No: 4M19A1929133  
 No. of Sheets: Sheet No: